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Efforts to learn how the arrangements of the printed text affects reading efficiency were summarized. Several assumptions were basic. First, one of the purposes is defined as investigation of any idea which might lead to raising the educational level. Second, it is assumed that the discovery of a means of raising the level of reading comprehension would contribute to a rise in the general level of education. Finally, it is assumed that to read well and comprehend rapidly one must read a text as the author intended it to be read.

An experimental text was prepared with the meaningful phrases as spoken aloud divided by double spaces. Three separate experiments involving use of this phrased text in comparison with a regular, unphrased text were administered to boys of grades 7 and 8. Several questions based on the original assumptions were posed before devising the tests and were answered based on the results of the three separate experiments. Results indicated that the answer to the question, "Can most readers improve their reading by shifting to a phrased text?" is "No." The question of using the material diagnostically, as a comparison of a pupil's reading of both a phrased and unphrased text, is tentatively answered affirmatively. Finally, results show that the excellent reader would probably be handicapped by having to conform to someone else's phrasing of his printed text.

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PHRASED READING EXPERIMENT:
Final Report

Educational Materials Laboratory
Office of Education
MAR 1964
DEPARTMENT OF
HEALTH, EDUCATION AND WELFARE

By the Bureau of Research of the ISEB
WARREN B. KOEHLER, *Chairman*

COVERING the period from February 1958 to the present, this report will sum up your Bureau's efforts to learn how the arrangement of the printed text affects reading efficiency. Basic to our study were the following assumptions:

1. It is one of the functions of the Bureau of Research to investigate any idea which might reasonably lead to the raising of the educational level.
2. Facility of comprehension in reading is vital to education. The discovery of any means of raising the general level of reading comprehension would quickly be translated into a rise in the general level of education.
3. To read well, to comprehend deeply and rapidly, one must read a text as the author intended it to be read, phrased as the author himself would phrase it. The author, however, has very limited means of indicating his phrasing; punctuation, the rules for which seem to be highly controversial, goes scarcely far enough to bring the author and reader into a meeting of the minds. To what extent even punctuation in some sentences is vital to comprehension, however, is brought out in a recent Boston *Globe* story: Actress Eleanora Duse, having watched a performance of Sarah Bernhardt, sent this note backstage: "Eleanora Duse says Sarah Bernhardt is a great actress." Wishing to return the compliment, Berhardt had only to add two commas to the note: "Eleanora Duse, says Sarah Bernhardt, is a great actress."
   a. Going far beyond the limits of help from punctuation, however, is the assumption that the spoken word is father to the written word, that, through habit training, we naturally speak in phrases, most of which are not indicated by any mark of punctuation. Our long efforts to help poor readers to improve has taught us that words are interdependent within meaningful groups; the meaning of a group of words can be completely destroyed by allowing its last word to slip over into the next group. "He had a little feebly/growing down on his chin," for example, is meaningless. Whereas, "He had a little feebly growing down/on his chin," becomes clear to the inexperienced reader.

Induced by these assumptions, then, and our desire to extend to all readers inexpensively what we have so clearly been able to give to a few readers in small groups at great cost, we asked ourselves the following questions:

1. Can the reading of most persons be improved simply by giving the author a means, in addition to punctuation, of indicating to the reader how his words should be read?
2. Can poor readers be taught proper phrasing by having them read a phrased text, this skill eventually carrying over to the conventional, unphrased text?
3. Can good candidates for intensive instruction in phrase reading be sifted out on the basis of their relative ease of reading the phrased text? Could, that is, a comparison of a pupil's reading of both a phrased and an unphrased text be used diagnostically?
4. Assuming, as a point of departure, a double space between meaningful phrases to be the most efficient means of segregating those phrases, will the resulting longer total linage of that text dissipate any advantage resulting from greater ease and security in finding the phrase?
5. Would, however, the present excellent reader, who we have assumed has achieved his excellence through having acquired skill in isolating phrases appropriate to his own degree of familiarity with the text in hand, find himself handicapped when confronted with someone else's phrasing of the text, a minimum length of phrase designed for less skillful readers?

Mr. Koehler, member of the faculty of Milton Academy, Milton, Mass., and Chairman of the ISEB's Bureau of Research, *acknowledges with thanks the help of his colleagues on the Bureau: William S. Litterick, President of Keuka College, Keuka Park, N. Y., and Harrison L. Reinke, Headmaster of Fay School, Southborough, Mass.*

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With these assumptions and questions in mind, therefore, a trial run of an experiment designed to test the validity of the assumptions, and, hopefully, to answer at least parts of some of the questions, was made in February and March of 1958. A form of the Paragraph Meaning part of the Stanford Achievement Test, Advanced Battery, was reprinted, with permission of the World Book Company, with its meaningful phrases, according to our judgment, divided by double spaces. Although every practicable effort was made to make the type face of this experimental form as nearly that of the regular control form as possible, the type face used by our local printer produced a more pleasing page than that of the alternate form of the regular, published test. Further, the paper used in printing this original experimental form was a 20-pound bond, cheaper, for local reasons, than the darker paper used in the regular Stanford. On the other hand, the distance the eye of the pupil must travel in reading the experimental, phrased text was longer by some six lines, 128 as compared to 122 for the regular text, or about 5%.

This experimental form was administered to the Milton Academy boys of grades 7 and 8. Five days later, the regular form J, an alternate form, was administered to the same boys. A comparison of the results of these two tests, as summarized below, favored the phrased, experimental form, the median being about a grade higher than the median for the reading of the control test, as previously reported.

No special instruction in phrase reading had been given to the group as a whole, although a number of the members of these classes had had special training in phrase reading as a part of their regular instruction, and the policy of the school has long favored the phrased approach to good reading. Nor was the special nature of this test pointed out to the boys.

	Grade 7		Grade 8	
	Phrased Test	Unphrased Test	Phrased Test	Unphrased Test
Testing Date	2/28/58	3/5/58	2/28/58	3/5/58
Number of Students	23	23	31	31
Median (Public School Grade Scale)	12.3	11.1	12.7	11.5
Range (Public School Grade Scale)	8.7–12.9+	9.3–12.7	9.5–12.8+	7.3–12.7
Number of Students who Answered all Items Correctly	9	0	12	0

With these seemingly encouraging results in hand, therefore, it appeared desirable to your Bureau to extend the base of our experiment, to see whether seventh and eighth grade pupils in a large number of member schools would find their reading helped by having their texts grouped by meaningful phrases.

To this end, therefore, having secured the promise of cooperation of the World Book Company, The Educational Records Bureau, the Executive Committee of the ISEB and, eventually, 154 ISEB member schools, we printed another experimental form of the Stanford Paragraph Meaning Test, this time, however, using identical type and paper in both the phrased and the unphrased tests. We were unable, however, to make the total linage of the two tests identical without what would have been an undesirable crowding of the letters within words; readers of the experimental form were still obliged to scan about 5% more space in covering all of the printed lines in that test.

The second revision of the phrased test was administered to one half of the pupils in grades 7 and 8 of 134 ISEB member schools; simultaneously in each school, the other half of these grades, chosen at random, took the unphrased form of the test. This meant that the same pupils were not taking both forms of the test, as was the case in the trial run on Milton Academy boys. Having a larger statistical base, some 8096 pupils, members of the Bureau felt that a comparison of the relative merits of the phrased and unphrased tests could be gained by this random sampling method.

Although 154 member schools eventually agreed to participate in this experiment, the results from only 111 could be used, either because their assent arrived after our test supplies had been exhausted or because they failed to give both forms of the tests. The results follow:

	Grade 7		Grade 8	
	PARAGRAPH MEANING			
	Phrased Test	Unphrased Test	Phrased Test	Unphrased Test
Total Pupils	1558	1576	1551	1508
Q3	11.6	11.5	12.3	12.3
Median	10.5	10.5	11.4	11.3
Q1	8.7	8.8	10.3	9.7
Range	2.9–12.9+	2.8–12.9+	3.6–12.9+	2.8–12.9+
	RATE			
No. Lines to Read	128	122	128	122
No. Words to Read	1128	1128	1128	1128
Q 3 (Words Read in 10 Minutes)	784	827	882	893
Median (Words Read in 10 Minutes)	696	726	756	760
Q 1 (Words Read in 10 Minutes)	603	629	668	669
Range (Lines Read)	19–128	12–122	17 -128	25–122

It is clear from these figures that the overall results of the random sampling phase of the experiment require that we answer our first question, namely, Can most readers improve their reading by means of a phrased text, *No*. The answer to our fourth question, namely, Will the resulting longer linage of the phrased text dissipate any advantage of the phrased test, is *Probably*.

On the other hand, a study of the detailed breakdown of the results by schools, too extensive to be put into a report in this form, indicates that 47 of the 104 schools had grade 7 pupils who read the phrased test better than the unphrased test, 19 of these meeting or exceeding the original Milton Academy experience of a full grade better. Twenty-two of these also read the material faster. Among grade 8 pupils, 51 of the 99 schools had median scores which were higher by a grade or more. Sixty-four of these schools had grade 8 pupils who read the material of the unphrased test faster, 28 by 10% or more. It seemed clear, then, that experience with the unphrased test differed markedly from school to school, for reasons which only difficult and intensive research could reveal, but that these differences are pretty well ironed out in the total results. An unresolved variable, of course, is still the difference in linage between the two forms of the test.

Faced, then, with conflicting results of the trial run and the random sampling phase of the experiment, members of the Bureau, aided invaluably by Dr. Arthur Traxler and Dr. Robert North of the Educational Records Bureau, decided to conduct still another experiment with this material, this time asking each pupil to take both forms of the

test, as in the trial run, and reprinting both forms of the test with the same type face on identical paper. The phrased form of the test, however, still had to be about 16% longer than the unphrased form in order to use the double-spacing between phrases and to avoid crowding of letters. This would tend to give us an answer to our initial question number 3, namely, can a comparison of a pupil's reading of phrased and unphrased texts be used diagnostically to sift out those presently poor readers who could be made better by instruction in the principles of phrase reading?

For this purpose, the consent of the Superintendent of Schools in Milton, Mass. and the Principal of the Cunningham Junior High School of Milton, Mr. Donald Allison, gave us the opportunity to test grade 7 and 8 pupils in a good public school who had not previously been given a phrased test. We administered the material to their grade 7 pupils on January 25, 1960, beginning at 8:30 A.M., and to their grade 8 pupils at the same hour on January 26, 1960. The plan was this: one half of each grade was given an unphrased test, the other half a phrased test, both being taken simultaneously. At the end of these tests, the forms were reversed, those who had taken the unphrased test first were given a phrased test. The reason for this split approach was to counterbalance any practice effect which might favor the form taken second, or possibly a fatigue effect favoring the form taken first. The results follow:

	Grade 7 (139)		Grade 8 (118)	
	PARAGRAPH MEANING (Public School Grade Scale)			
	Phrased Test	Unphrased Test	Phrased Test	Unphrased Test
Lines to be Read	132	113	132	113
Q 3	10.7	10.7	11.8	12.1
Median	9.0	9.2	10.3	10.6
Q 1	6.7	6.9	8.4	8.9
Range	3.2–12.9+ (43 Correct Answers)	3.5–12.9 (41 Correct Answers)	5.3–12.9+ (43 Correct Answers)	4.2–12.9+ (43 Correct Answers)
	RATE (Number of Words Read in 10 Minutes)			
Lines to be Read	132	113	132	113
Q 3	745.6	800.6	825.6	850.8
Median	642.5	691.0	700.0	740.0
Q 1	554.8	618.8	672.5	647.7
Range	257–1014	295–1047	298–1084	463–1061

TAKING the composite results of this final phase of the experiment, then, at face value, it must be concluded that the phrased test as it was set up here does not benefit the 7th grade reader in comprehension or in rate of reading, although the highest level of comprehension was achieved on the phrased test, a top of 43 correct answers as opposed to 41 on the unphrased test. In grade 8, however, comprehension of the unphrased material was not superior to that of the phrased form of the test. Nor did the figures for rate of reading in this grade favor the phrased test except in the bottom quartile and in the top speed of the best readers. A break-down of these rate figures reveals the curious fact, however, that the 53 members of grade 8 who took the phrased test second achieved, as a group, and at all quartile levels, a much higher reading rate on that phrased form than was achieved by either group on the un-

phrased form. In nearly all cases, incidental to this observation, the test taken second yielded higher scores than those achieved by the other half of the class who took that test first, confirming the results of other studies that students of this age benefit from a warm-up run on a test of only twenty-five minutes; there is definitely a practice effect favoring the second test, taken immediately. All conclusions drawn from these figures, furthermore, must be modified in favor of the phrased test in view of the fact that the reader had to cover 16% more space to reach its end than the reader of the unphrased form.

Perhaps the most interesting result of this final phase of the experiment, however, was the answer it seems to give to our initial question number 3, Can the material be used to diagnose faults in a poor reader's reading? Certainly we could expect no such differences in results between two identical, alternate form tests taken consecutively as we have found to exist in the cases of some individuals taking the phrased and the unphrased tests here. The individuals favoring the unphrased test just about balance out those favoring the phrased test, as the composite results show, but long experience in modifying reading difficulties urgently suggests that any pupil who can move from a failure position in reading the conventional, unphrased text to an honor position in his class when reading the phrased form, as a significant number of pupils did in this experiment, is a most likely candidate for instruction in phrase reading. On the other hand, those reading the conventional text badly and reading the phrased text even worse need attention, always keeping in mind the variable of the I Q, of another sort. Reading, being a most complicated process, can be poor for a variety of reasons calling for a variety of remedial approaches.

In summary of all three phases of this experiment in phrase reading, then, our answer to our initial question number 1, Can most readers improve their reading by shifting to a phrased text?, is "No," according to the results of this experiment, although until a means of equalizing the line-length of the compared forms is found, hopefully in further studies, this answer must be qualified.

No answer to question number 2, Can pupils be taught to read by phrases by reading a phrased text?, arises from this study. Further study of this question would be relatively simple and profitable.

Question number 3, Can the material be used diagnostically? is, we suggest, tentatively answered "Yes," but the final answer must wait upon a further study in which follow-up instruction in phrase reading of certain pupils is undertaken.

Our answer to question number 4, Will the longer linage of the phrased text in this experiment cloud the issue?, is "Probably," although a further study in which the phrased text linage is made equal to that of the unphrased text, regardless of letter crowding, is indicated. Further, it might prove profitable to test our assumption that the double space is the best means of separating phrases, using, perhaps, a slash mark or an asterisk.

Finally, our answer to question number 5, Would the present excellent reader be handicapped by having to conform to someone else's phrasing?, is "Probably."